

REMARKS

Claims 1, 2 and 4 are all the claims pending in the application.

I. Objection to the Drawings

The Examiner has objected to the drawings for the reasons set forth on pages 2-3 of the Office Action. In particular, the Examiner asserts that it is not clear if the signal being input to the subtracter 6 is an added signal or a multiplexed signal.

Applicants respectfully submit that one of ordinary skill in the art would clearly recognize that the signal being input to the subtracter 6 is an added signal. In this regard, Applicants note that the MPEP explicitly indicates that a "patent need not teach, and preferably omits, what is well known in the art" (see MPEP § 2164.01). Applicants note that replacement sheets are being submitted herewith for Figs. 1, 3 and 5 in order to explicitly show that the signals are being added.

Regarding the Examiner's indication in the Office Action that Figs. 1, 3 and 5 should include arrowheads to denote signal flow, Applicants respectfully submit that one of ordinary skill in the art would understand the direction of signal flow based on the drawings, and therefore, Applicants respectfully submit that such arrowheads are not necessary. Again, as noted above, the MPEP indicates that a "patent need not teach, and preferably omits, what is well known in the art" (see MPEP § 2164.01).

In view of the foregoing, Applicants kindly request that the objection to the drawings be reconsidered and withdrawn.

II. Claim Rejections under 35 U.S.C. § 103(a)

A. The Examiner has rejected claim 1 under 35 U.S.C. §103(a) as being unpatentable over Konno et al. (U.S. 6,122,385) in view of Matsushita (JP 7-16299).

Claim 1, as amended, recites the feature of a negative feedback circuit that is formed by inputting an added signal to a subtracter, the added signal being an addition of a first output signal delivered from a microphone amplifier and a second output signal delivered from the microphone and passed through the high-pass filter. Applicants respectfully submit that the combination of Konno and Matsushita does not teach or suggest at least this feature of claim 1.

Regarding Konno, Applicants note that this reference discloses a sound reproduction apparatus having a subtracter 10, a power amplifier 11, a speaker 13, a microphone 14, a microphone amplifier 15, a filter 16 and an adder 17 (see Fig. 1).

As shown in Fig. 1 of Konno, the output of the microphone amplifier 15 is input to the filter 16, and the output of filter 16 is input to the adder 17 (see col. 3, lines 52-57). As also shown in Fig. 1, the output of the subtracter 10 is the other signal that is input to the adder 17 (see col. 3, lines 58-60). As explained in Konno, a negative feedback circuit is formed by inputting the output signal of adder 17 into the negative terminal of the subtracter 10 (see col. 3, lines 60-62).

Thus, in Konno, the negative feedback circuit is formed by inputting an added signal (i.e., the output of adder 17) to the subtracter 10, wherein the added signal is an addition of (1) an output signal delivered from the subtracter 10 and (2) an output signal delivered from the microphone amplifier 15 and passed through the high-pass filter 16.

As such, Applicants respectfully submit that Konno does not disclose, suggest or otherwise render obvious the feature of a negative feedback circuit that is formed by inputting an added signal to a subtracter, the added signal being an addition of a first output signal delivered from a microphone amplifier and a second output signal delivered from the microphone and passed through the high-pass filter, as recited in amended claim 1.

Regarding the Matsushita reference, Applicants respectfully submit that this reference does not cure the above-noted deficiencies of Konno. In this regard, it is noted that Matsushita was relied on in the Office Action solely for the teaching of an acoustic pipe.

Furthermore, Applicants note that claim 1 also recites that a cutoff frequency of the high-pass filter is matched with a resonance frequency of the acoustic pipe.

Regarding Konno, Applicants note that this reference discloses that a cutoff frequency of the high-pass filter 16 is matched with the lowest resonance frequency of the speaker 13 (see col. 4, lines 47-49). The Examiner recognizes that Konno does not disclose the use of an acoustic pipe, and as noted above, has relied on Matsushita for the teaching of an acoustic pipe 2, and has taken the position that it would have been obvious to provide the acoustic pipe 2 of Matsushita within the sound reproduction apparatus of Konno (see Office Action at page 4).

In the previous response, Applicants asserted that because Konno explicitly indicates that the cutoff frequency of the high-pass filter is matched with the lowest resonance frequency of the speaker 13, that even if Konno and Matsushita were combined, that one of ordinary skill in the art would not have been motivated to modify the high-pass filter 16 of Konno such that the cutoff frequency thereof was matched with a resonance frequency of the acoustic pipe 2.

In response to this argument, the Examiner has taken the position in the present Office Action that “Konno teaches a cutoff frequency matching a resonant frequency of the received signal regardless of the structure” (see item 8 on page 7 of the Office Action). Applicants disagree with the Examiner’s position.

As noted above, Konno explicitly indicates that the cutoff frequency of the high-pass filter 16 is matched with the lowest resonance frequency of the speaker 13, and in no way whatsoever discloses that the cutoff frequency of the high pass filter 16 is matched with the received signal regardless of structure. In this regard, Applicants note that the resonance frequency of an acoustic pipe is quite different than the lowest resonance frequency of the speaker 13 which varies according to the dimensions of the speaker 13.

Thus, as noted above, Applicants respectfully submit that even if Matsushita was combined with Konno, that the resulting combination would not suggest to one of ordinary skill in the art that the cutoff frequency of the high-pass filter should be matched with a resonance frequency of an acoustic pipe.

In view of the foregoing, Applicants respectfully submit that amended claim 1 is patentable over the cited prior art, an indication of which is kindly requested.

B. The Examiner has rejected claims 3 and 4 under 35 U.S.C. § 103(a) as being unpatentable over Konno et al. in view of Meyers (U.S. 3,798,374) and Matsushita (JP 7-16299).

Regarding claim 3, Applicants note that this claim has been amended to recite that a negative feedback circuit is formed by inputting an added signal to the subtracter, the added signal being an addition of a first output signal delivered from the microphone amplifier and

passed through a -12dB/oct. high-pass filter and a second output signal delivered from the microphone and passed through a -6 dB/oct. high-pass filter. Applicants respectfully submit that the combination of Konno, Meyers and Matsushita does not disclose or suggest at least this feature of claim 3.

Regarding Konno, as note above, this reference discloses a negative feedback circuit that is formed by inputting an added signal (i.e., the output of adder 17) to the subtracter 10, wherein the added signal is an addition of (1) an output signal delivered from the subtracter 10 and (2) an output signal delivered from the microphone amplifier 15 and passed through the high-pass filter 16.

As such, Applicants respectfully submit that Konno does not disclose, suggest or otherwise render obvious the feature of a negative feedback circuit that is formed by inputting an added signal to the subtracter, the added signal being an addition of a first output signal delivered from the microphone amplifier and passed through a -12dB/oct. high-pass filter and a second output signal delivered from the microphone and passed through a -6 dB/oct. high-pass filter, as recited in amended claim 3.

Regarding the Meyers reference, Applicants note that the Examiner has relied on this reference for the teaching of an equalizer 70. As explained in Meyers, the equalizer 70 is formed of capacitors C73, C74 and resistors R71 and R72 (see Fig. 1 and col. 4, lines 54-62). Thus, it is the combination of these four elements (i.e., C73, C74, R71 and R72) that function as an equalizer.

In the Office Action, the Examiner asserts that an equalizer 70 generally comprises multiple filters (see Office Action at page 8). Applicants respectfully disagree and point out to

the Examiner that it is well known in the art that an equalizer is composed of a combination of electronic elements, such as coils, capacitors and resistors, wherein the combination of electronic elements functions as a filter. Thus, contrary to the position of the Examiner, an equalizer does not generally comprise multiple filters.

Based on the Examiner's comments that an equalizer generally comprises multiple filters, it is clear that the Examiner is taking Official Notice with respect to this position. Accordingly, if the Examiner maintains the position that an equalizer generally comprises multiple filters, Applicants request that the Examiner provide a supporting reference as required under MPEP 2144.03.

Further, regarding the Matsushita reference, as noted above, this reference was relied by the Examiner solely for the teaching of an acoustic pipe, and therefore, does not cure the above-noted deficiencies of Konno and Meyers.

In view of the foregoing, Applicants respectfully submit that the combination of references cited by the Examiner does not teach, suggest or otherwise renders obvious the feature of a negative feedback circuit that is formed by inputting an added signal to a subtracter, the added signal being an addition of a first output signal delivered from a microphone amplifier and passed through a -12dB/oct. high-pass filter and a second output signal delivered from the microphone and passed through a -6 dB/oct. high-pass filter, as recited in amended claim 3.

Furthermore, Applicants note that claim 3 also recites that a cutoff frequency of the -12 dB/oct high-pass filter is matched with a resonance frequency of the acoustic pipe. For at least similar reasons as discussed above with respect to claim 1, Applicants respectfully submit that the combination of Konno and Matsushita does not teach, suggest or otherwise render obvious

such a feature. In addition, Applicants respectfully submit that Meyers does not cure this deficiency of Konno and Matsushita.

In view of the foregoing, Applicants respectfully submit that claim 3 is patentable over the cited prior art, an indication of which is kindly requested.

Regarding claim 4, Applicants note that this claim has been amended to recite that a negative feedback circuit is formed by inputting an added signal to a subtracter, the added signal being an addition of a first output signal delivered from the microphone amplifier and passed through a -12 dB/oct. high-pass filter and a second output signal delivered from the microphone and passed through one of a -6 dB/oct. low-pass filter and a -12 dB/oct. low-pass filter. In addition, Applicants note that claim 4 also recites that a cutoff frequency of the -12 dB/oct. high-pass filter is matched with a resonance frequency of the acoustic pipe.

For at least similar reasons as discussed above with respect to claim 3, Applicants respectfully submit that the combination of Konno, Meyers and Matsushita does not teach, suggest or otherwise render obvious at least the above-noted features recited in amended claim 4. Accordingly, Applicants submit that claim 4 is patentable over the cited prior art, an indication of which is kindly requested.

III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited.

If any points remain in issue which the Examiner feels may best be resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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